

1 Safety Notes

This Quick Guide is intended as a handy reference for setting up the NetBeam 1G ODU with integrated 1ft Antenna. This guide does not replace the full manual; please refer to the "NetBeam Family System Manual" for full installation and setup details.

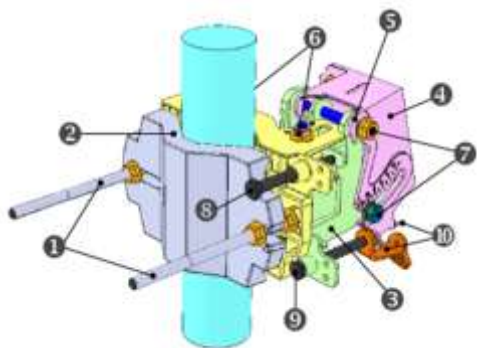
The Installation and maintenance of this link should be performed by service personnel who are properly trained and certified to carry out such activities. Make sure to disconnect all power cables before service!

ODU must be grounded using min 16AWG cable or according to local electrical code.

For DC (21 ÷ 57 VDC) connection use a 2-wire cable (14-18 AWG) with 2 Amp circuit breaker on the live voltage (+ or -). The other poly should be grounded.

2 Mounting 1ft Antenna

1. Mount the ODU on a fixed reinforced steel mounting pole with 2-4 inches diameter.
2. Assemble the Mounting Bracket and attach it to the pole according to following diagram:



1. Unit Mounting Screws and Bolts
2. Back Mounting Bracket
3. Front Mounting Bracket
4. Quick Release Plate (Attached to ODU)
5. Quick Release Hooks
6. Azimuth Adjustment Lock Bolts
7. Elevation Adjustment Lock Bolts
8. Azimuth Fine Adjustment Screw ($\pm 8^\circ$)
9. Elevation Fine Adjustment Screw ($\pm 16^\circ$)
10. Elevation Screw Tension Band and Pin

3. Position the Azimuth and Elevation Adjustment Lock Bolts at 0 degrees (in the middle of the scale) and unlock them to allow free movement during alignment.



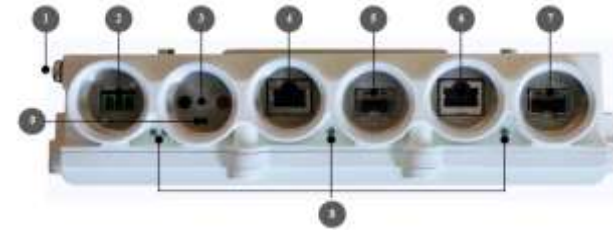
CAUTION:

Use care to avoid damaging or scratching the antenna radome:
Do not touch the radome when unpacking the ODU.
Do not rest the ODU face down to prevent scratches.
Prevent all contact between the radome and other objects.

4. By default, the ODU is delivered with the Quick Release Plate attached in a vertical polarization. If necessary, change the ODU polarization by rotating the Quick Release Plate so the arrow will point the "H" (horizontal) mark on the back of the ODU.
5. Mount the ODU on the bracket using the Quick Release Hooks and slide it firmly inwards.
6. Stretch the Elevation Screw Tension Band slightly and connect it to its mating Tension Pin, located on the Quick Release Plate.

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Connecting the Cables



- | | |
|--|---|
| 1. Electrical Ground Point (GND) | 6. Ethernet Cable RJ45 Interface (RJ2) |
| 2. Power Connector Interface (PWR) | 7. Fiber Cable SFP Interface (SFP2) |
| 3. DVM Probe Interface (AUX) | 8. System LEDs |
| 4. Ethernet Cable RJ45 Interface (RJ1) | 9. Reset Button (press for more than 5 seconds to restore factory defaults) |
| 5. Fiber Cable SFP Interface (SFP1) | |

1. All cabling connected to the ODU should be outdoor-grade, with UV protection.

2. Shielded outdoor Cat5e cables terminated with metallic RJ45 connectors must be used.

3. Two Ethernet interfaces available, and can be configured to either electrical RJ45 (default) or optical SFP.

4. Connect the ground cable to the ODU GND point.

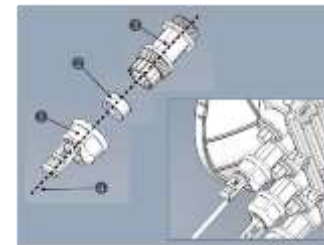
5. Power up the ODU using DC cable or 802.3at Power over Ethernet (PoE connection available via RJ1 port only).

6. In case of DC (21 ÷ 57 VDC), connect **only** the (+) and (-) wires to the DC terminal provided with the ODU.

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Connectors Weatherproof

Use the provided protective All-Weather Shells as described in the following diagram (fits cables from 3.5 mm to 9.0 mm diameter).



1. Cable Inlet Portion
2. Rubber Gasket Insert
3. Connector Outlet Portion
4. Cable

1. Thread the cable connector through the Cable Inlet Portion (1) of the shell, through the Rubber Gasket (2) and through the Connector Outlet Portion (3).
2. Choose Rubber Gasket that best fits the cable diameter (note the Rubber Gasket is spliced and can be assembled on cables with connectors).
3. Connect the cable connector to the ODU interface.
4. Screw the Connector Outlet Portion (3) to the ODU firmly by hand (do not use tools).
5. Insert the Rubber Gasket snugly into the Connector Outlet Portion (3) of the shell.
6. Screw the Cable Inlet Portion (1) to the Connector Outlet Portion (3) firmly by hand (do not use tools).
7. When removing All-Weather Shell, make sure to unscrew the Cable Inlet Portion (1) first, making sure the Connector Outlet Portion (3) does not move and only then remove the Connector Outlet Portion (3) from the ODU port.

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System LEDs

LED	Color	Description
PWR (Power)	Green – Power OK	Blink Green – Device boot (~90 sec)
	Red – Power Failure	
	Off – ODU off	
RF	Green – Link Up	
	Orange – Alignment Mode	
	Off – Link Down	
ETH1/2:	Green – Link (Carrier) 1G	Blink Green – 1G activity
	Orange – Link (Carrier) 10/100	Blink Orange – 10/100 activity
	Off – No Link (Carrier)	

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Aligning the Antenna

1. Perform a coarse Azimuth and Horizontal alignment using a line-of-sight visual check with the remote ODU. Lock the Mounting Bracket to the pole using a 13 mm/0.5" open wrench.
2. Once ODU is powered up, switch both ODUs to Alignment Mode by inserting the Digital Volt Meter probes into the DVM Probes at the AUX Interface. Following this action, the RF LED color indicator will turn orange, indicating the ODU is in Alignment mode. The ODU will remain in Alignment Mode even if the DVM probes are ejected, until the ODU is rebooted.
3. Read the receive level (RSSI) using the DVM. The voltage reading will be between 0 to 1Vdc, indicating the RSSI in dBms (for example 0.45 V=-45 dBm).
4. Perform fine Azimuth and Elevation alignment using the fine adjustment bolts, identifying the main lobe until the expected receive level is achieved (within +/-4 dB).
5. Once the optimum position has been achieved, tighten the azimuth adjustment lock bolts on one ODU first.
6. **Tightening the azimuth adjustment lock bolts will tilt the ODU, so realign the elevation again for optimum position and then tighten the elevation adjustment lock bolts.**
7. Use the DVM to verify that the received signal level has not changed on ODU after final tightening of the brackets.
8. Repeat steps 5-7 on the second ODU. *Antenna alignment is now complete.*

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Initial System Setup

1. Disconnect the DVM and reboot both ODUs by shortly pressing the ODU Reset Button. This returns the ODU to Adaptive Mode (ODU's default operational mode). Following this action, and after the ODU has finished rebooting, the RF LED color indicator on both ODUs will turn Green, indicating that the radio link is **Up**.
2. Carefully reinsert and tighten the AUX port protective seal.

The NetBeam link can now pass traffic and management between the ports and over the radio link. For further radio link configuration, connect to the ODU using the Web EMS.

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Basic Configuration Using Web EMS

1. Launch an Internet browser and enter the ODU's IP address in the address bar. For the default IP address enter: **https://192.168.0.1**.
2. Wait for the Java Applet to load and enter the username and password (default read/write access: **admin, admin**).
3. To view and configure system information, click **System** and then **System Information**, setting: ODU Name, Date (YYYY.MM.DD) and Time (HH:MM:SS). Click **Apply** when finished.

Note that changing the Date & Time will terminate your connection and you will have to reconnect and launch the Web EMS.

4. To view and configure IP address, click **System** and then **IP**, setting:

Index (#) – 1, IP Address, Prefix Length – in mask bits, VLAN – 0. Click **Apply** when finished.

Note that changing the IP address will terminate your connection and you will have to reconnect and launch the Web EMS using the new IP.

5. To view and configure IP default gateway, click **System** and then **Route**, setting:

Index (#) – 1, Destination – 0.0.0.0, Prefix Length – 0, Next Hop – gateway address. Click **Apply** when finished.

6. To view and configure the Ethernet ports parameters, click the interface icon on the main screen. To configure the port for optical SFP, set **Ethernet Type** to **1000xf**. Click **Apply** when finished.

7. To view and configure RF parameters, Click **Radio**. Click **Apply** when finished.

- **Frequency (MHz)** – select from list (default values is 74375).
- **Channel Width (MHz)** – 250 MHz or 500 MHz. Default value is 500.
- **Role** – In a link, one side must be set to Master and the other side must be set to Slave (required for link synchronization). Default value is **Auto**, meaning the role will be set automatically by the link. You can check the current set role in the **Role Status** field. Manually setting the Role is necessary only for asymmetric configurations.
- **Transmit Asymmetry** – Default value is symmetric configuration: 50% for Tx and Rx (50tx-50rx). For an asymmetric configuration (75%/25% or 90%/10%), you will have to manually configure the Role and set the Master unit to 75tx-25rx (or 90tx-10rx) and the Slave unit to 25tx-75rx (or 10tx-90rx).
- **Mode** – Default value is Adaptive (Adaptive Bandwidth, Code and Modulation), meaning the ODU will switch to the highest modulation profile available by data-rate license and link condition. In Adaptive mode, the modulation profile the ODU has reached is available in the Modulation, Sub-Channels, Repetitions and FEC fields.
- **Operational Status** – Displays the radio link status (Up or Down).
- **RSSI (dBm)** – the Receiver Signal Strength Indicator displays the received signal level.
- **CINR (dB)** – Displays the Carrier to Interference + Noise ratio, which indicates the radio link's signal quality. In normal conditions, CINR≥17 indicates a good signal quality.
- **Tx Power (dBm)** – ODU's transmit power (+5 to -35 dBm). Default value is +5 dBm. Reduce the Tx power in case of short links, making sure the RSSI at the remote ODU does not exceed -35 dBm.

8. To view the loaded license configuration, click **Advanced Settings** and then **Licensing**. Check the currently enabled licenses (features-set and data-rate).

9. To save the ODU's configuration, click **Save Configuration** on the Web EMS Main screen.



If you do not click **Save Configuration**, saving the currently running configuration to the startup configuration, all changes made will be lost upon the next ODU reset.



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Support Contacts

Technical support for Netronics direct customers:

Netronics Support - support@netronics-networks.com

Download your copy of the "NetBeam Family System Manual" from http://www.netronics-networks.com/kb_system_manuals.html.